THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 11

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte RANKO SCEPANOVIC, JAMES S. KOFORD, EDWIN R. JONES, DOUGLAS B. BOYLE and MICHAEL D. ROSTOKER

Appeal No. 96-3949
Application No. 08/230,383[1]

ON BRIEF

Before KRASS, MARTIN, and RUGGIERO, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-24, all of the claims pending in the present application.

The disclosed invention relates to the determination of highest fitness of a number of possible cell placements for an integrated circuit chip. Appellants disclose at pages 54-64

[1] Application for patent filed April 19, 1994.

of the specification that cell placements are represented by an initial cell placement in combination with a list of individual cell transpositions or swaps by which the cell placement can be derived from the initial cell placement.

Representative claim 1 is reproduced as follows:

1. A physical design automation system for determining a highest fitness cell placement for an integrated circuit chip, comprising:

a memory for storing a first cell placement as including an initial cell placement and a first list of cell transpositions by which said first cell placement can be derived from said initial cell placement, and for storing a second cell placement as including said initial cell placement and a second list of cell transpositions by which said second cell placement can be derived from said initial cell placement; and

a fitness processor for determining which of said first and second cell placements has highest fitness in accordance with a predetermined fitness algorithm.

The Examiner relies on the following references:

Okude et al. (Okude) 5,187,668 Feb. 16, 1993

Shahookar, K. et al. (Shahookar), "VLSI Cell Placement Techniques," ACM Computing Surveys, Vol. 23, No. 2, June 1991, pages 143-219.

Claims 1, 2, 7-9, and 15 stand rejected under 35 U.S.C.

§ 102(b) as being anticipated by the disclosure of Okude. Claims 3-6, 10-14, and 16-24 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Okude in view of Shahookar.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the Briefs[2] and the Answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the Examiner and the evidence of anticipation and obviousness relied upon by the Examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the Appellants' arguments set forth in the Briefs along with the Examiner's rationale in support of the rejections and arguments in rebuttal set forth in the Examiner's Answer.

[2] The appeal Brief was filed March 4, 1996. In response to the Examiner's Answer dated May 24, 1996, a Reply Brief was filed June 27, 1996 which was acknowledged and entered by the Examiner without further comment on August 22, 1996.

It is our view, after consideration of the record before us, that Okude does not fully meet the invention as set forth in claims 1, 2, 7-9, and 15. We are also of the view that the evidence relied upon would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 3-6, 10-14, and 16-24. Accordingly, we reverse.

We consider first the rejection of claims 1, 2, 7-9, and 15 as being anticipated by the disclosure of Okude. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Systems, Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.); cert. dismissed, 468 U.S. 1228 (1984); W.L. Gore and Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

The Examiner supports this rejection by attempting to read the claims on the placement optimization system of Okude.

The various passages in Okude referenced by the Examiner (Answer, page 3) describe an iterative procedure in which elements are altered from an initial placement until optimization is achieved. The Examiner contends (Answer, pages 8 and 9) that cell interchange transpositions in Okude would inherently be stored in a list to facilitate the handling of the numerous placement interchanges.

In response, Appellants argue at pages 8 and 9 of the Answer that Okude utilizes a conventional cell placement representation which consists of a table of cells and their locations. Appellants contrast this with their claimed storing and representation of cell placement as an initial cell placement in combination with a set of cell transpositions from which the cell placement can be derived. As to the Examiner's argument regarding the inherency of storing cell transpositions in
Okude, Appellants initially contend (Brief, page 9) that the Examiner is not relying on a single prior art reference as required by the principles of anticipation. Appellants apparently base this argument on their view that the Examiner is, in effect, combining the prior art with an unsupported

allegation that a key claimed feature is implied in the prior art. On this particular point, we cannot agree with Appellants. The Examiner has utilized the terminology "inherently imply" at pages 5 and 8 of the Answer. In our view, it is clear that the Examiner is attempting to rely on the principles of inherency with regard to the single prior art reference to Okude regardless of the exact terminology used in the rejection. The prior art reference need not expressly disclose each claimed element in order to anticipate the claimed invention. See Tyler Refrigeration v. Kysor Indus. Corp., 777 F.2d 687, 689, 227 USPQ 845, 846-847 (Fed. Cir. 1985). Rather, if a claimed element (or elements) is inherent in a prior art reference, then that element (or elements) is disclosed for purposes of finding anticipation. See Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631-33,
2 USPQ2d 1051, 1052-54 (Fed. Cir. 1987).

As to the merits, however, of the Examiner's position with regard to the inherency of storing cell transpositions in Okude, it is our view, after careful review of Okude and Appellants' arguments, that the Examiner has not made a prima

facie case of anticipation. It is well settled that the burden of establishing a prima facie case of anticipation resides with the Patent and Trademark Office (PTO). See In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). When relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. See Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Patent App. & Int. 1990).

As discussed previously, the Examiner relies on the description in Okude of the iterative procedure of achieving placement optimization by starting with an initial placement and continually evaluating pairwise interchanges of elements. The Examiner contends that a list of cell transpositions would be stored in Okude to enable the simultaneous processing of placement interchanges. However, we are in agreement with Appellants that there is no teaching or suggestion of the storing of transposition lists in Okude. More importantly, assuming, arguendo, that the storing of transposition lists is inherently taught in Okude, the claims would not be met since

all of the independent claims in the application require the representation of a particular cell placement as a combination of initial cell placement and a list of cell transpositions.

With respect to the rejection of claims 3-6, 10-14, and 16-24 under 35 U.S.C. § 103 as being unpatentable over Okude in view of Shahookar, we note that Shahookar was cited to meet the particular recited cell placement improvement techniques. Appellants, at page 11 of the Brief, agree that Shahookar disclose conventional placement improvement methodologies, but contend that there is no teaching of the storing of cell placement representation as a combination of initial cell placement and a set of cell transpositions. On careful review of Shahookar, we agree with Appellants and conclude that, therefore, Shahookar does not cure the innate deficiencies of Okude. Accordingly, we do not sustain the rejection of claims 3-6,
10-14, and 16-24 for the reasons discussed above.

In summary, we have not sustained either of the Examiner's rejections of the claims on appeal. Therefore, the decision of the Examiner rejecting claims 1-24 is reversed.

REVERSED

ERROL A. KRASS Administrative Patent Judge	)
JOHN C. MARTIN Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
JOSEPH F. RUGGIERO Administrative Patent Judge	)

jrg

Breton A. Bocchieri
POMS, SMITH, LANDE & ROSE
2029 Century Park East, Suite 3800
Los Angeles, CA 90067-3024